

a.) Amendment to the Claims

1. (Currently Amended) A retroreflective article ~~formed of many~~ comprising plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions of x direction, y direction, and z direction and set on a common plane (S-S') decided by base line groups of the parallel V-shaped groove groups, ~~characterized in that~~ in which

one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed between

a cross line between

a plane vertical to the common plane (S-S') and a V-groove vertical plane (Svx, Svy, or Svz) which includes the base line of a V-shaped groove and perpendicular to said the common plane (S-S'), and a reflective lateral face (a1, b1, c1, a2, b2, or c2), and the V-groove vertical plane

does not form a constant angle in the reflective lateral face but the lateral face forms a curved and/or multiple surface.

2. (Currently Amended) The retroreflective article ~~formed of many~~ triangular-pyramidal cube-corner retroreflective element pairs according to claim 1, ~~characterized in that~~ wherein at least one reflective lateral face for constituting the

triangular-pyramidal cube-corner retroreflective element pairs, the one-side groove angle (GLx, GRx, GLy, GRy, GRz, or GRz) does not form a constant angle with the maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner and a reflective lateral face forms a curved and/or multiple surface.

3. (Currently Amended) A retroreflective article ~~formed of many triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions (x, y, and z directions)~~ according to claim 1 or 2, ~~characterized in that~~ wherein the internal angle of one of bottom-plane triangles formed of three bottom planes constituting the reflective elements ranges between 35 and 75°.

4. (Currently Amended) The retroreflective article ~~formed of many triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions~~ according to claim 3, ~~characterized in that~~ wherein the internal angle of one of bottom-plane triangles formed of three base lines constituting the reflective elements ranges between 45 and 70°.

5. (Currently Amended) The retroreflective article ~~formed of many triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions (x, y, and z~~

directions) according to ~~any one of claims 1 to 4, characterized in that~~ claim 4, wherein the depth of a plane ( $S_x$ ,  $S_y$ , or  $S_z$ ) formed by the base line group of at least one-directional V-shaped groove constituting the reflective elements is different from the depth of other planes.

6. (Currently Amended) The retroreflective article ~~formed of many triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups ( $x, x, x, \dots, y, y, y, \dots$ , and  $z, z, z, \dots$ ) from three directions ( $x, y$ , and  $z$  directions)~~ according to ~~any one of claims 1 to 5, characterized in that~~ claim 5, wherein an x-directional V-shaped groove constituting the reflective elements does not pass through the intersects (A and B) of y- and z-directional V-shaped grooves and is formed at a position having an offset ( $\Delta x$ ) from a straight line connecting intersects A and B, the triangular-pyramidal cube-corner retroreflective element pairs are asymmetric pairs.

7. (Currently Amended) A retroreflective article ~~formed of many comprising plural~~ triangular-pyramidal cube-corner retroreflective element pairs formed of V-shaped groove groups ( $x, x, x, \dots, y, y, y, \dots$ , and  $z, z, z, \dots$ ) arranged at equal intervals from three directions and set on a common plane ( $S-S'$ ) decided by base line groups of the V-shaped groove groups, ~~characterized in that~~ in which the base line constituting any-directional V-shaped groove in the retroreflective element pairs is a nonlinear base line

which does not form a linear trajectory and the reflective lateral face formed of the V-shaped groove forms a curved and/or multiple surface.

8. (Currently Amended) The retroreflective article according to claim 7, ~~characterized in that~~ wherein a nonlinear factor (fx, fy, or fz) specified by the maximum distance between the intersect of a vertical line from the both-end straight line connecting both ends of the nonlinear base line to the nonlinear base line and the nonlinear side and the both-end straight line ranges between 0.0001L and 0.05L when assuming the length of the both-end straight line as L.

9. (Currently Amended) The retroreflective article according to claim 7 or 8, ~~characterized in that~~ wherein the trajectory of the nonlinear base line includes at least one curved line selected from a function obtained from a circular arc, trigonometric function (sine curve, cosine curve, or tangent curve), inverse trigonometric function, elliptic function, hyperbolic function, and function obtained by combining any of these ~~the~~ functions.

10. (Currently Amended) The retroreflective article ~~formed of many triangular pyramidal cube corner retroreflective element pairs~~ according to claim 7 or 8, ~~characterized in that~~ wherein the trajectory of the nonlinear base line is shown by a broken line obtained by combining straight lines.

11. (Currently Amended) The retroreflective article ~~formed of many triangular pyramidal cube corner retroreflective element pairs according to any one of claims 7 to 10, characterized in that~~ claim 9, wherein a one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed of a line decided when a plane vertically intersecting with the both-end straight line intersects with the reflective lateral face and a V-groove vertical plane (Ux, Uy, or Uz) vertical to a common plane (S-S') and including the both-end straight line do not form a constant angle with the maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner or a reflective lateral face does not form a plane.

12. (Currently Amended) The retroreflective article according to ~~any one of claims 7 to 11~~ claim 11, wherein characterized in that an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 35 and 75°.

13. (Currently Amended) The retroreflective article according to claim 12, ~~characterized in that~~ wherein an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 45 and 70°.

14. (Currently Amended) The retroreflective article according to ~~any one of claims 7 to 13, characterized in that~~ claim 13, wherein the depth of at least one of planes ( $S_x$ ,  $S_y$ , or  $S_z$ ) formed of each base line group of the three-directional V-shaped groove groups ( $x$ ,  $x$ ,  $x$ ,...,  $y$ ,  $y$ ,  $y$ ,..., and  $z$ ,  $z$ ,  $z$ ,...) is different from the depth of other planes.

15. (Currently Amended) The retroreflective article according to ~~any one of claims 7 to 13, characterized in that~~ claim 13, wherein an x-directional V-shaped groove does not pass through the intersect (A or B) between y-directional and z-directional V-shaped grooves and is formed at a position having an offset ( $\Delta x$ ) shown by the maximum distance between the x-directional groove and a straight line connecting the intersects A and B, and the triangular-pyramidal cube-corner retroreflective element pair is an asymmetric pair.

16. (New) The retroreflective article according to claim 10, wherein a one-side groove angle ( $GL_x$ ,  $GR_x$ ,  $GL_y$ ,  $GR_y$ ,  $GL_z$ , or  $GR_z$ ) formed of a line decided when a plane vertically intersecting with the both-end straight line intersects with the reflective lateral face and a V-groove vertical plane ( $U_x$ ,  $U_y$ , or  $U_z$ ) vertical to a common plane ( $S-S'$ ) and including the both-end straight line do not form a constant angle with the

maximum deviation of 0.0001 to 0.1° from a normal one-side groove angle for forming a cube corner or a reflective lateral face does not form a plane.

17. (New) The retroreflective article according to claim 16, wherein characterized in that an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 35 and 75°.

18. (New) The retroreflective article according to claim 17, wherein an internal angle of a base line triangle formed of the both-end straight line connecting both ends of base lines of three reflective lateral faces constituting the reflection elements ranges between 45 and 70°.

19. (New) The retroreflective article according to claim 18, wherein the depth of at least one of planes (Sx, Sy, or Sz) formed of each base line group of the three-directional V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) is different from the depth of other planes.

20. (New) The retroreflective article according to claim 18, wherein an x-directional V-shaped groove does not pass through the intersect (A or B) between y-

directional and z-directional V-shaped grooves and is formed at a position having an offset ( $\Delta x$ ) shown by the maximum distance between the x-directional groove and a straight line connecting the intersects A and B, and the triangular-pyramidal cube-corner retroreflective element pair is an asymmetric pair.

21. (New) A retroreflective article, said retroreflective article comprising:

(i) plural triangular-pyramidal cube-corner retroreflective element pairs formed of parallel V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) from three directions of x direction, y direction, and z direction and set on a common plane (S-S') decided by base line groups of the parallel V-shaped groove groups, in which

one-side groove angle (GLx, GRx, GLy, GRy, GLz, or GRz) formed between

a cross line between

a plane vertical to the common plane (S-S') and a V-groove vertical plane (Svx, Svy, or Svz) which includes the base line of a V-shaped groove and perpendicular to said the common plane (S-S'), and a reflective lateral face (a1, b1, c1, a2, b2, or c2), and the V-groove vertical plane



does not form a constant angle in the reflective lateral face but the lateral face forms a curved and/or multiple surface, or

(ii) plural triangular-pyramidal cube-corner retroreflective element pairs formed of V-shaped groove groups (x, x, x,..., y, y, y,..., and z, z, z,...) arranged at equal intervals from three directions and set on a common plane (S-S') decided by base line groups of the V-shaped groove groups, in which the base line constituting any-directional V-shaped groove in the retroreflective element pairs is a nonlinear base line which does not form a linear trajectory and the reflective lateral face formed of the V-shaped groove forms a curved and/or multiple surface.